Claims

What is claimed is:

1. A process for forming a decorative surface upon an outboard surface of a wheel disc, the method comprising the steps of:

(a) providing a cutting tool for smoothing a wheel surface that includes a rhombic shaped body portion having a mounting aperture formed therethrough and an insert having a cutting tip carried upon one end of the body portion, the insert having arcuate leading and trailing edges, the insert also having a zero degree land formed thereabout whereby the cutting edge of the insert is maintained tangent to the wheel surface.

(b) mounting a machined vehicle wheel including a wheel rim and having a wheel disc extending radially across the wheel rim in a lathe;

(c) rotating the wheel;

(d) urging the cutting tool provided in step (a) with a uniform pressure against an outboard surface of the wheel disc and traversing the cutting tool in a radial direction across the outboard surface of the wheel disc to smooth at least a portion of the outboard wheel disc surface such that the smoothed portion of the wheel disc outboard surface has a polished appearance; and

(e) chrome plating the smoothed portion of the outboard wheel surface.

2. A process according to claim 1 wherein the entire outboard face of the wheel disc is smoothed in step (d).

3. A process according to claim 1 further including, subsequent to step (d), applying a protective coating to the chrome plated surface.

4. A process according to claim 3 wherein the coating is a clear coating.

5. A process according to claim 1 wherein step (d) includes a rate of feed for the wheel lathe that is less than the leading edge radius of the cutting tool.

6. A process according to claim 5 wherein step (d) includes a rate of feed for the wheel lathe that is one tenth of the leading edge radius of the cutting tool.

7. A process according to claim 5 wherein step (d) includes a rate of feed for the wheel lathe that is less than one tenth of the leading edge radius of the cutting tool.

8. A process according to claim 1 wherein the cutting tool insert is formed from a crystalline material.

9. A process according to claim 8 wherein the cutting tool insert is formed from a polycrystalline material.

10. A process according to claim 8 wherein the cutting tool insert is formed from a mono-crystalline material.

11. A process according to claim 1 wherein the cutting tool insert is coated with a layer formed from a hard substance.

12. A process according to claim 11 wherein the hard substance is a polycrystalline material.

13. A process according to claim 11 wherein the hard substance is a mono-crystalline material.

14. A process according to claim 11 wherein the hard substance is a ceramic material.

15. A process according to claim 11 wherein the hard substance is a diamond material.

16. A process according to claim 8 wherein the cutting tool insert leading edge has a leading edge radius and the trailing edge has a trailing edge radius with the leading edge radius being greater than the trailing edge radius.

17. A process according to claim 16 wherein the cutting tool leading edge radius is twice the trailing edge radius.

18. A process according to claim 17 wherein the cutting tool leading edge radius is about three mm and said trailing edge radius is about 1.5 mm.

19. A process according to claim 17 wherein the end of the cutting tool body adjacent to the tip is undercut by an angle in the range of 5 to 15 degrees.

20. A process according to claim 8 wherein the cutting tool insert has a leading edge having a leading edge radius and a trailing edge having a trailing edge radius with the leading edge radius being equal to the trailing edge radius.

21. A process according to claim 19 wherein the cutting tool undercut is 5 degrees.

22. A process according to claim 19 further including a tool holder formed from an anti-vibration material.

23. A process according to claim 21 wherein the cutting tool insert is canted relative to a surface of the cutting tool body.

24. A process according to claim 1 wherein the cutting tool leading edge radius is twice the trailing edge radius.

25. A process according to claim 24 wherein the end of the cutting tool body adjacent to the tip is undercut by an angle in the range of 5 to 15 degrees.

26. A process according to claim 25 wherein the cutting tool insert is canted relative to a surface of the cutting tool body.

27. A process according to claim 26 wherein the cutting tool insert is formed from a hard substance.

28. A process according to claim 27 wherein the cutting tool leading edge radius is about three mm and the trailing edge radius is about 1.5 mm.

29. A process according to claim 27 wherein the cutting tool leading edge radius is equal to the trailing edge radius.

30. A process for forming a decorative surface upon an outboard surface of a wheel disc, the method comprising the steps of:

(a) providing a cutting tool for smoothing a wheel surface that includes a rhombic shaped body portion having a mounting aperture formed therethrough and a crystalline insert carried upon one end of the body portion, the insert having arcuate leading and trailing edges, the insert also having a zero degree land formed thereabout whereby the cutting edge of the insert is maintained tangent to the wheel surface.

(b) applying an electrically non-conductive material to a surface of the wheel.

(c) mounting a machined vehicle wheel including a wheel rim and having a wheel disc extending radially across the wheel rim in a lathe;

(d) rotating the wheel;

(e) urging the cutting tool provided in step (a) with a uniform pressure against an outboard surface of the wheel disc and traversing the cutting tool in a radial direction across the outboard surface of the wheel disc such that a portion of the coating is removed and the portion of the wheel disc outboard surface from which the coating was removed is smoothed and has a polished appearance; and

(e) chrome plating the wheel whereby the remaining coating prevents adhesion of the chrome plating chemicals such that only the portions smoothed in step (e) are chrome plated.

31. A process according to claim 30 wherein the coating applied in step (b) is a paint.

32. A process according to claim 31 wherein the paint applied in step (b) includes an inert ingredient.

33. A process according to claim 30 wherein the coating applied in step (b) is a clear coating.

34. A process according to claim 33 wherein the clear coating applied in step (b) includes an inert ingredient.

35. A process according to claim 30 wherein the coating applied in step (b) includes a first layer of paint and a second layer of clear coat with the second layer covering the first layer.

36. A process for forming a decorative surface upon an outboard surface of a wheel disc, the method comprising the steps of:

(a) providing a cutting tool for smoothing a wheel surface that includes a rhombic shaped body portion having a mounting aperture formed therethrough and a crystalline insert carried upon one end of the body portion, the insert having arcuate leading and trailing edges, the leading edge having a leading edge radius and the trailing edge having a trailing edge radius with the leading edge radius being greater than the trailing edge radius, the insert also having a zero degree land formed thereabout whereby the cutting edge of the insert is maintained tangent to the wheel surface.

(b) mounting a machined vehicle wheel including a wheel rim and having a wheel disc extending radially across the wheel rim in a lathe;

(f) rotating the wheel;

(g) urging the cutting tool provided in step (a) with a uniform pressure against an outboard surface of the wheel disc and traversing the cutting tool in a radial direction across the outboard surface of the wheel disc such that a portion of the coating is removed and the portion of the

wheel disc outboard surface from which the coating was removed is smoothed and has a polished appearance;

(h) removing the wheel from the lathe;

(i) applying an electrically non-conductive material to the portion of the wheel face surface that was not smoothed in step (g); and

(j) chrome plating the wheel whereby the electrically non-conductive coating prevents adhesion of the chrome plating chemicals such that only the portions machined in step (g) are chrome plated.

37. A process according to claim 36 wherein the coating applied in step (i) is a paint.

38. A process according to claim 37 wherein the paint applied in step (i) includes an inert ingredient.

39. A process according to claim 36 wherein the coating applied in step (i) is a clear coating.

40. A process according to claim 39 wherein the clear coating applied in step (i) includes an inert ingredient.

41. A process according to claim 36 wherein the coating applied in step (b) includes a first layer of paint and a second layer of clear coat with the second layer covering the first layer.